PATENT SPECIFICATION

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PROVISIONAL SPECIFICATION

Improvements in or Relating to Foldable Trolleys, Pushchairs and the Like

I, THOMAS MANN, a British subject, of 170, Plessey Road, Blyth, Northumberland, do hereby declare the nature of this invention to be as follows:—

This invention relates to foldable trolleys, pushchairs and the like and has for one object to provide such articles with an improved form of folding wheel structure which enables the wheels to be readily brought to positions paralled and close to or within the plane of a main framework, chassis or base of the article so as to reduce the compass of the article to enable it to be carried or transported in a convenient way and to occupy a minimum space in storage, the said wheel structure being rigidly held when in its extended position for use. Further, the invention has in view to provide an improved construction of luggage or like trolley having a foldable wheel structure as above and which also is collapsible to reduce the major dimension of its main framework or chassis when not in use, the collapsing and extending of said framework or chassis being easy to perform.

According to the invention a foldable trolley, pushchair or the like embodies a wheel structure comprising at least one pair of wheels, of which pair each wheel is mounted on its own independent bracket, said brackets being journalled on a base framework or chassis of the article at opposite sides of the latter whereby the wheels may be swung bodily inwards to reach positions in or parallel to the plane of the said main framework or chassis, the two brackets being connected together by a multi-section bar having its outer ends pivotally connected to wheel-axle portions of said brackets, the sections of said bar being capable of sliding upon each other in collapsing the structure, means being provided for interlocking said sections when the wheels are in operative positions, there being provided also bayonet slot and pin devices associated with the brackets and main framework for holding said brackets in the folded position and also, if necessary, in their in-use positions.

Conveniently the two sections of the connecting bar may be telescopically engaged together.

The invention also consists in providing a luggage or like trolley having a main framework composed of two sections telescopically or otherwise slidably engaged together, one section having the wheel brackets mounted thereon, the other section being capable of being drawn out to give the frame the required length, the outer end of said second section constituting a handle. Means preferably is provided for locking said second section in its extended position.

A convenient form of luggage trolley according to the invention has a main frame composed of two opposed U-shaped frame members, at least one of which is of tubular form so that the legs thereof receive telescopically the legs of the other member. A releasable spring-loaded locking device comes into operation automatically when the inner member has been drawn out to the required extent. The member whose legs form the outer tubes has a pair of wheel-carrying brackets journalled on its respective legs, each bracket having for this purpose a sleeve portion embracing the appropriate leg. Each of said sleeve portions is formed with a transverse slot having laterally-directed end portions in the manner of a double-ended bayonet slot. Pins project from the frame legs into said slots, the arrangement being that traverse of each pin along the associated slot permits the bracket to turn through the required angle, a slight longitudinal movement of the bracket when in either of its ultimate positions serving to lock said bracket in such position. Each bracket has a main plate portion extending tangentially or radially from the sleeve portion and provided near its outer end with a laterally-extending stub axle, the arrangement being that these stub axles are coaxial and directed towards each

other when the brackets are swung down. A wheel is mounted on each axle.

The tangential disposition of each bracket plate with respect to the bracket sleeve may be such that, in folding, the wheels pass beyond and above the plane of the main frame to reach positions parallel to the latter, the connecting bar then being above the wheels.

A two-section connecting bar, one section of which is telescopically engaged with the other, has the outer ends of its respective sections pivotally attached to the different stub axles. A spring-loaded locking device comes into operation automatically when the said composite locking bar is extended to its full length. The connecting bar then serves as a tie-bar between the two brackets.

The spring-loaded locking devices incorporated with the telescopically-engaged members of the main frame and with the two sections of the connecting bar may comprise, in each instance, a pair of diametrally-opposed plungers carried by the inner member of the telescopic pair and urged outwards to project through holes in said inner member by an interposed spring, the plungers having radiused outer ends which snap into holes in the outer member. These plungers can be readily pressed in by the fingers to effect unlocking.

The crossbar portion of the wheel-carrying frame member may be provided with swivel-mounted fingers which can be brought to upstanding positions to serve as a luggage rest, and can be folded down into the plane of the main frame.

It will be understood that when the wheel brackets have been folded up (with simultaneous shortening of the connecting bar) and the one frame member has been pushed into the other, and the luggage-rest fingers have been folded down, the article becomes very compact for carrying, transport or storage. The parts can be brought to their operative positions very easily and quickly.

Dated the 6th day of December, 1946.

Kings Patent Agency Limited, by
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Agents for the Applicant.

COMPLETE SPECIFICATION

Improvements in or Relating to Foldable Trolleys, Pushchairs and the Like

I, THOMAS MANN, a British subject, of 170, Plessey Road, Blyth, Northumberland, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention relates to trolleys, pushchairs and the like and has for one object to provide such articles with an improved form of folding wheel structure which enables the wheels to be readily brought to positions parallel and close to or within the plane of a main framework, chassis or base of the article so as to reduce the compass of the article to enable it to be carried or transported in a convenient way and to occupy a minimum space in storage, the said wheel structure being rigidly held in its extended position for use. Further, the invention has in view to provide an improved construction of luggage or like trolley having a foldable wheel structure as above and which also is collapsible to reduce the major dimension of its main framework or chassis when not in use, the collapsing and extending of said framework or chassis being easy to perform.

It has already been proposed to provide foldable pushchairs with wheels mounted on brackets or legs which can be swung up inwardly of the pushchair to bring the wheels to positions more or less horizontal beneath a seat of the article, and in one instance the brackets were connected by a spring-loaded composite connecting bar, the axis of which passed over and beyond a line joining the bracket pivots in moving said brackets from either one position to the other position, whereby the said spring-loaded bar served to hold the brackets in their different positions.

According to the invention, a trolley, pushchair or the like is provided wherein a main framework or chassis has straight parallel side portions of circular section on which are journalled sleeve portions of wheel-carrying brackets whereby said brackets may be swung from positions in which the wheels are in vertical planes for use to folded positions in or parallel to the plane of the framework or chassis, and the brackets are connected together by a connecting bar having its outer ends pivotally connected to wheel-axle portions of said brackets, the sections of said bar comprising sections slidably engaged together and provided with means for interlocking them when the wheels are in positions for use, the framework or chassis and the bracket sleeves being provided with inter-engaging devices for limiting the turning of the

brackets to their positions for use and for holding said brackets in their folded positions. Conveniently there are provided bayonet slot and pin devices associated with the brackets and main framework for limiting the outward swinging movements and holding said brackets in their folded positions. Said devices may if desired serve to lock the brackets in their in-use positions. The two sections of the connecting bar may be telescopically engaged together.

The invention also consists in providing a luggage or like trolley having the above features and wherein the main framework is composed of two sections telescopically or otherwise slidably engaged together, one section having the wheel brackets mounted thereon, the other section being capable of being drawn out to give the frame the required length, the outer end of said second section constituting a handle, means being provided for locking said second section in its extended position.

A convenient form of luggage trolley according to the invention is illustrated in the accompanying drawings, wherein:—

Figure 1 is a side elevation of the trolley with the parts in position for use,

Figure 2 is a plan of Figure 1,

Figure 3 is an end elevation,

Figure 4 is a cross section showing the wheel brackets swung up to out-of-use position, and

Figure 5 is a sectional view of a locking device as incorporated in the bar which connects the wheel brackets, and as provided for locking in position the extension member of the framework.

The Luggage trolley illustrated has a main frame composed of two opposed U-shaped frame members 1 and 2, at least one of which (i.e. frame 1) is of tubular form so that the legs thereof receive telescopically the legs of the other member 2. The member 1 is a main or base frame which is furnished with supporting wheels, and serves as the principal luggage carrier, the frame 2 serving as a handle. Releasable spring-loaded locking devices at 3 come into operation automatically when the inner member has been drawn out to the required extent. The member 1 whose legs form the outer tubes has a pair of wheel-carrying brackets 4 journalled on its respective legs, each bracket having for this purpose a sleeve portion 5 embracing the appropriate leg. Each of said sleeve portions 5 is formed with a transverse slot 6 having laterally-directed end portions 7, 8 in the manner of a double-ended bayonet slot. Pins 9 project from the frame legs into said slots 6, the arrangement being that traverse of each pin along the associated slot permits the bracket to turn through the required angle, a slight longitudinal movement of the bracket 4 when in either of its ultimate positions serving to lock said bracket in such position by reason of pins 9 engaging into slot portions 7 or 8. Each bracket 4 has a main plate portion 10 extending tangentially or radially from the sleeve portion 5 and provided near its outer end with a laterally-extending stub axle 11, the arrangement being that these stub axles are coaxial and directed towards each other when the brackets are swung down to the full extent permitted by slots 6. A wheel 12 is mounted on each axle 11.

The tangential disposition of each bracket plate 10 with respect to the bracket sleeve 5 is such that, in folding, the wheels 12 pass through and above the plane of the main frame to reach positions parallel to the latter (see Figure 4) a connecting bar 13, 14 then being above the wheels.

The connecting bar comprises two sections, viz a rod 13 telescopically engaged within a tube 14, the outer ends of its respective sections being pivotally attached to the respective stub axles 11. A spring-loaded locking device at 15 comes into operation automatically when the said composite connecting bar is extended to its correct length. The connecting bar then serves as a locking tie-bar between the two brackets and is in alignment with the stub axles 11.

The spring-loaded locking devices incorporated with the telescopically-engaged members 1, 2 of the main frame at 3 and with the two sections 13, 14 of the connecting bar at 15 for automatic locking, may comprise, in each instance (see Fig. 5) a pair of diametrally-opposed plungers 16 carried by the inner member of the telescopic pair and urged outwards to project through holes in said inner member by an interposed spring 17, the plungers having radiused outer ends which snap into holes in the outer member. These plungers can be readily pressed in by the fingers to effect unlocking.

The crossbar portion 18 of the wheel-carrying frame 1 may be provided with swivel-mounted fingers 19 which can be brought to upstanding positions to serve as a luggage rest, and can be folded down into the plane of the main frame.

It will be understood that when the wheel brackets 4 have been folded up (with simultaneous shortening of the connecting bar 13, 14) and the frame member 2 has been pushed into the member 1, and the luggage-rest fingers 19 have been folded down, the article becomes very compact for carrying, transport or storage. The parts can be brought to their operative positions very easily and quickly.

As shown, the legs of one frame member may extend nearly the full length of the legs of the other frame member when the article is collapsed, so allowing for considerable extension of the composite framework when the member 2 has been drawn out to its full extent.

HAVING NOW particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A trolley, pushchair or the like wherein a main framework or chassis has straight parallel side portions of circular section on which are journalled sleeve portions of wheel-carrying brackets whereby said brackets may be swung from positions in which the wheels are in vertical planes for use to folded positions in or parallel to the plane of the framework or chassis, and the brackets are connected together by a connecting bar having its outer ends pivotally connected to wheel-axle portions of said brackets the sections of said bar comprising sections slidably engaged together and provided with means for interlocking them when the wheels are in positions for use, the framework or chassis and the bracket sleeves being provided with interengaging devices for limiting the turning of the brackets to their positions for use and for holding said brackets in their folded positions.

2. A trolley, pushchair or the like according to Claim 1, having slot and pin devices associated with the brackets and main framework for limiting the outward swinging movements of said brackets and for holding them in their folded positions by bayonet formations of said slots.

3. A trolley, pushchair or the like according to Claim 2, wherein the slots additionally have bayonet formations to afford a secondary locking means for holding the brackets in their in-use positions.

4. A luggage trolley according to any of the preceding Claims, wherein the main framework is composed of two straight sections telescopically or otherwise slidably engaged together, on section having the wheel brackets mounted thereon, the other section being capable of being drawn out to give the frame a required length, the outer end of said second section constituting a handle, and means is provided for locking said second section in its extended position.

5. A luggage trolley, pushchair or the like according to Claim 1, wherein the brackets include plates extending tangentially from the sleeve portions in such a manner as to assist in bringing the wheels above the plane of the main frame and parallel to the latter when the structure is folded.

6. A trolley, pushchair or the like according to Claim 1, having releasable spring-loaded locking means for locking the two sections of the connecting bar together automatically when said bar has been extended to its correct length.

7. A luggage trolley constructed and operating substantially as herein described with reference to the accompanying drawings.

Dated the 21st day of April 1947.

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[This Drawing is a reproduction of the Original on a reduced scale.]

FIG. 1.

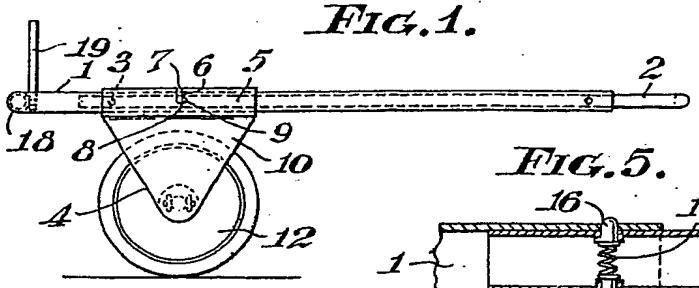
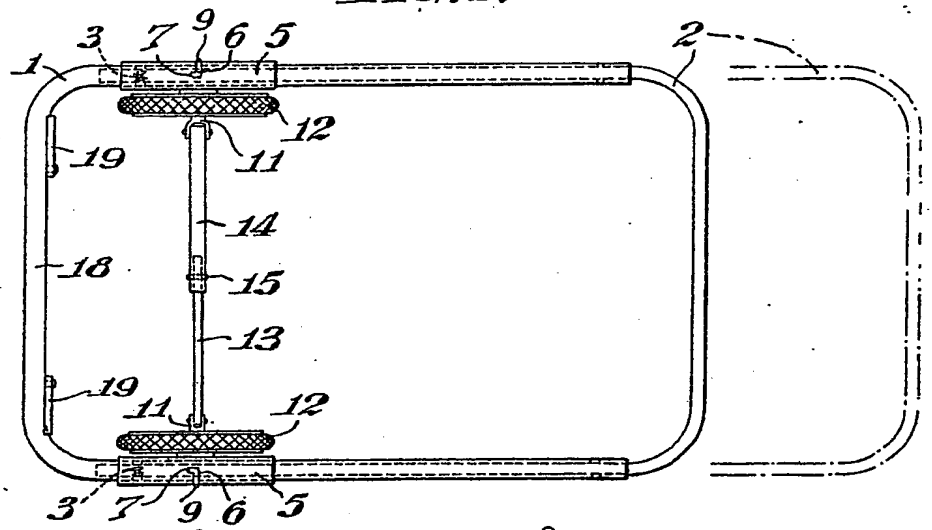


FIG. 5.

FIG. 2.



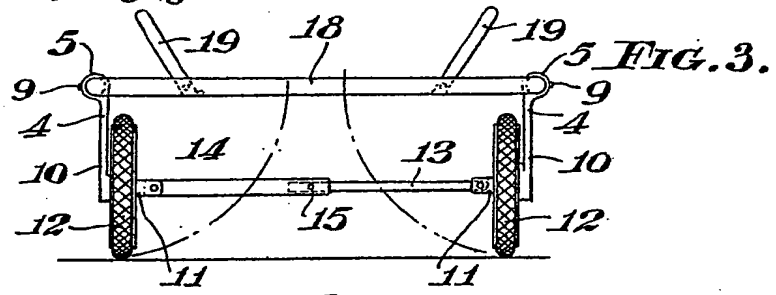


FIG. 3.

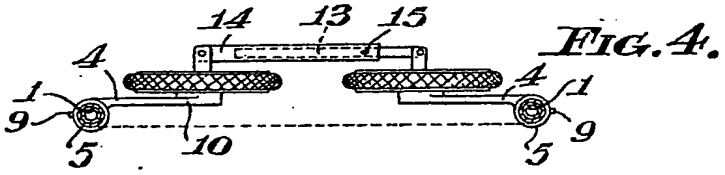


FIG. 4.

H.M.S.O. (Ty. P.)